Hammel, B. 2012. *Ipomoea diriadactylina* (Convolvulaceae), a new species from the Nicoya Peninsula, Costa Rica. Phytoneuron 2012-27: 1–6. Published 19 March 2012. ISSN 2153 733X

IPOMOEA DIRIADACTYLINA (CONVOLVULACEAE), A NEW SPECIES FROM THE NICOYA PENINSULA, COSTA RICA

BARRY E. HAMMEL
Missouri Botanical Garden
P.O. Box 299
St. Louis, Missouri 63166
and
Instituto Nacional de Biodiversidad (INBio)
Apdo. 22-3100
Santo Domingo, Heredia, Costa Rica
barry.hammel@mobot.org

ABSTRACT

Ipomoea diriadactylina Hammel (Convolvulaceae), a new white-flowered species with bilobed stigmas and marginally lanate seeds, is described from an isolated ridge on the Nicoya Peninsula of Costa Rica. This publication provides a name for the species treated as *Ipomoea* "sp. A" in the *Manual de Plantas de Costa Rica*. The species is somewhat similar to the locally sympatric *I. batatoides* and *I. lindenii*, both of which can have white or greenish white corollas of similar size and shape, and lanate seeds. From both, and from all their known relatives, the new species differs strikingly by its large, persistent bracts and by its indistinctly mucronate sepals that (in life) become markedly convex in fruit, resembling fingers or claws.

RESUMEN

Ipomoea diriadactylina Hammel (Convolvulaceae), una especie nueva con flores blancas, estigmas bilobulados, y semillas marginalmente lanosas, se describe de una fila aislada en la Península de Nicoya de Costa Rica. Esta publicación provee un nombre para la especie tratada como *Ipomoea* "sp. A" en el *Manual de Plantas de Costa Rica*. La especie es algo parecida a las localmente simpátricas *I. batatoides* e *I. lindenii*, ambas que pueden tener las corolas blancas o blanco verduzco y de similar tamaño y forma, y tienen semillas lanosas. De ambas, y de todas las especies relacionadas conocidas, la especie nueva difiere notoriamente por sus brácteas grandes persistentes y por sus sépalos indistintamente mucronados que (en vivo) se vuelven marcadamente convexos en el fruto, con apariencia de dedos o garras.

KEY WORDS: Convolvulaceae, Costa Rica, *Ipomoea*, Nicoya Peninsula.

Ipomoea is a large genus with upwards from 650 species worldwide, over half of them from the New World (Austin & Huáman 1996). Many of the species, however, are wide-ranging. Although *Ipomoea* is quite large even in Costa Rica — *I. diriadactylina* becomes the fifty-second species known from the country — only eight other species names still considered to belong to *Ipomoea* were originally described from Costa Rica. *Ipomoea amparoana* Pilg., said to be related to *I. squamosa* Choisy (= *I. morelii* Duchass & Walp.) and described from cultivated material with no type designated nor yet found, is by its protologue most likely a synonym of *I. carnea* Jacq. (Hammel, in prep.). That assumed, of those eight names just one, *I. magniflora* O'Donell (known only from the type), has not been relegated to synonymy. Thus, the present new species, so far known only from a few plants along an isolated ridge on the Nicoya Peninsula, is only the second endemic *Ipomoea* for the country.

Ipomoea diriadactylina Hammel, sp. nov. **TYPE: COSTA RICA. Guanacaste**. Cantón Santa Cruz. Dist. Santa Cruz: Rumbo a Vista al Mar por P. N. Diriá, ca. 200 m N de las primeras antenas, 10° 08.5' N, 85° 37.8' W, 800 m, 6 Nov 2009, *B. Hammel & I. Pérez 25480* (holotype: MO; isotypes: ARIZ, CR, F, INB, MEXU, P, TEX, US). Figures 1–4.

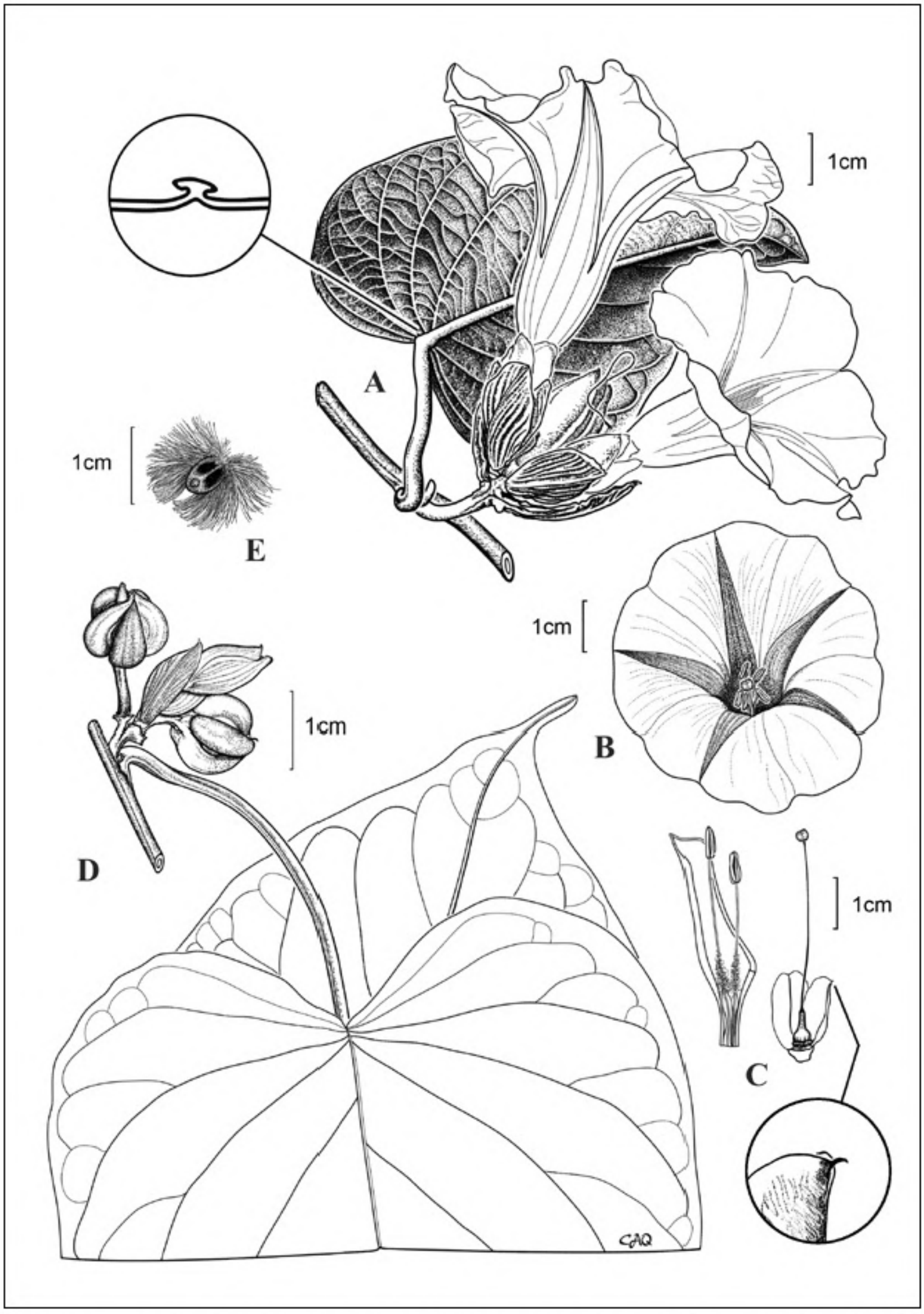

Figure 1. *Ipomoea diradactylina*. A, habit with flowers and close-up of cross section of leaf midrib, lower surface of blade; B, front view of corolla; C, section of flower showing two of the five stamens attached to corolla and pistil with close-up of tip of sepal; D, habit with nearly mature fruits showing calyx of markedly convex sepals; E, seed. Drawn by Claudia Aragon. A-C from the type, D from *Hammel & Pérez 24989*, E from *Hammel & Pérez 25026*.

This species is similar vegetatively and in its marginally lanate seeds to *Ipomoea batatoides* Choisy and in its short peduncles and pedicels to *I. lindenii* M. Martens & Galeotti — the new species can be distinguished from both of those and all their known relatives by its large and persistent inflorescence bracts and by its calyx of large sepals that almost completely encompass the mature fruit and in life are strongly convex, giving the appearance of the fruit being held in claws or fingers.

Plants suffruticose perenial vines or lianas. **Stems** glabrous, without adventicious roots. **Leaves** glabrous; petiole 5–10 cm; blade 8–13.5 × 4.5–9 cm, ovate, unlobed, basally cordate to truncate, apically acuminate, often with small dark dots on the lower surface, the midvein abaxially flattened (and especially at the base, slightly overhanging the blade surface), with 7–9 secondary veins per side, the tertiary veins adaxially impressed. **Inflorescences** of 1–20 flowers; peduncle 1–2 cm, terete; bracts 10–20 × 5–10 mm, elliptic, minutely pustulose, ± persistent. **Flowers** subsessile or with the pedicel 1–5 mm; **sepals** subequal, 11–16 × 5–10 mm, oblong-elliptic, apically obtuse and mucronate (the mucro 1–2 mm), abaxially and minutely pustulose, adaxially and minutely strigulose, the margin somewhat lighter in a narrow, subhyaline band; **corolla** white with yellowish interplicae, 50–70 mm, funnelform, externally glabrous; **stamens** with 2 filaments 27–34 mm and 3 filaments 18–22 mm, the basal 5–6 mm of filaments villous, the anthers 4–6 mm, oblong, saggitate, the pollen spheroidal, spinulose; **ovary** 2–3 mm, glabrous, the style 34–40 mm, glabrous (the basal 3–5 mm thickened and appearing rostrate on the ovary), the stigma biglobose. **Fruits** white, 1.1–1.2 × 0.9–1 cm, subglobose, glabrous, usually with the lower, thickened part of the style persistent; seeds dark brown, 6–7 × ca. 4 mm (not including trichomes), ovoid, ± trigonous, lanate around the margin with silvery golden to copper-colored trichomes to 10 mm.

Flowering Aug, Nov. Climbing on low shrubs and trees at edge of moist forest, 500–960 m; Costa Rica (Guanacaste), northern Pacific slope, northern Nicoya Peninsula, Cerro Brujo.

Additional collections examined. **COSTA RICA**. **Guanacaste**. Cantón and Dist. Santa Cruz. Dist. Santa Cruz. Península de Nicoya. Parque Nacional Diriá: Fila Vista del Mar. Camino a las Torres de Telecomunicaciones, 25 Aug 1995, *J. González et al. 940* (INB); Rumbo a Cerro Brujo y Vista al Mar, 15 Nov 2008, *B. Hammel & I. Pérez 24989* (CR, INB, MO); Cerca a la cima de Cerro Brujo, bajando rumbo a Vista al Mar, 16 Nov 2008, *B. Hammel & I. Pérez 25026* (CR, INB, MO).

Etymology. The epithet is a combined toponym and descriptive: "diria" for the national park, near or in which the species has been found and "dactylina" meaning "divided into fingerlike structures" (Stern, 1983), in reference to its unusual fruiting calyx.

In the Convolvulaceae treatment (Hammel, 2010) for the *Manual de Plantas de Costa Rica* *Ipomoea diriadactylina* was treated as *I.* "sp. A" and keyed out next to *I. lindenii*. It can be confused with that locally sympatric species by the latter's similarly short-peduncled inflorescences with the pedicels sometimes as short, by its flowers with sepals of similar size and shape, and by the often white corolla with a similar shape. *Ipomoea lindenii*, however, is immediately distinguishable by having smaller, narrowly lanceolate and soon-caducous bracts, usually lanceolate and more distinctly hyaline-margined, non mucronate sepals, and seeds that are lanate with white trichomes and not only along the margin but also (at least puberulent) on the rest of the body. Even vegetatively these two species can be distinguished easily since *I. lindenii* is only rarely glabrous and often manifestly tomentose, its leaves are without black dots, and the midrib is abaxially and distinctly convex (vs. flattened). By these vegetative characters as well as by the seeds, the present species is much more easily confused with — virtually identical to — *I. batatoides* Choisy, which also is locally sympatric. One suspects that *I. diriadactylina* may be more closely related to *I. batatoides* and its near relatives. This latter species has much more open, virtually ebracteate inflorescences, and the flowers have much smaller, often suborbicular, non-mucronate sepals, usually with a pink (occasionally white)

corolla. The sepals of *I. diriadactylina* also appear to be unique for their indument; minutely pustulose on the outer surface, minutely strigulose on (at least the upper 1/2 of) the inner. As per its characters and comparison to similar species, this new species would certainly be classified by Austin and Huáman (1996) in subgenus *Eriospermum*, perhaps even of that same section and series, [Er,Er,Er] in their annotation.

Figure 2. *Ipomoea diradactylina*. Photo by the author with flowers, from the type.

The first material of *Ipomoea diradactylina* was collected (with just one open flower) in 1995 by former INB curator José González. Not until several years later during preparation of the Convolvulaceae for the *Manual* did the problematic nature of this entity become apparent. In spite of several intervening searches, fertile plants were not found again until 2008 (in fruit) and 2009 (in flower and fruit). Apparently the species is not very common.

Although many trees in the area are thickly covered with large vines that resemble the new species, a reliable way has not been found to distinguish it vegetatively from *Ipomoea batatoides*, which also grows in the area. The González specimen and two of the Hammel and Pérez gatherings are,

Figure 3. *Ipomoea diradactylina*. Photo by the author with fruits, from the type.

by their geographic coordinates, from virtually the same spot, perhaps even the same plant. Thus, only two different individuals are known for certain. Although it seems highly likely that *I. diradactylina* is more common than collections indicate, the evidence is lacking. Records show that at least seven different botanists have collected in the area during the last 15 years, gathering only about 500 numbers and just over 300 species (from above 300 m). *Ipomoea diriadactylina* was found serendipitously only once out of those 500 numbers, the other three gatherings were the result of a concentrated effort by the author.

Figure 4. Type locality of *Ipomoea diriadactylina*. Photo by the author from south side of Cerro Brujo looking south towards Cerros Mata de Caña and Vista al Mar.

The ridge from where the new species has been collected comprises, in part, a close North to South series of three hills (named on maps) above 900 meters: Cerro Brujo (ca. 960 m), Cerro Mata de Caña (972 m), and Cerro Vista al Mar (Cenizosa, 983 m). Only one other peak, Cerro Azul, ca. 45 km southwest, is slightly higher, at 1018 m, on the generally low-lying Nicoya Peninsula. At least part of this ridge is in, or borders on, the recently declared National Park of Diriá and has been the site of numerous recent country records for Costa Rica, including *Anisacanthus nicaraguensis* Durkee, *Chileranthemum pyramidatum* (Lindau) T.F. Daniel (Acanthaceae), *Doyerea emetocathartica* Grosourdy (Cucurbitaceae), *Ipomoea suaveolens* (M. Martens & Galeotti) Hemsl., *Schwenckia lateriflora* (Vahl) Carvalh (Solanaceae), and *Tridax platyphylla* B.L. Rob. (Asteraceae). As continued exploration (and work on previously collected material) in this area ensues, more new species and country records are sure to follow.

ACKNOWLEDGMENTS

I thank Isabel Pérez (INB) for her help in the field on all trips to the Parque Nacional Diriá, as well as for reviewing the Spanish abstract. I am also grateful to park administrator Ademar Rosales for facilitating our numerous visits to P.N. Diriá. Freelance illustrator Claudia Aragon provided the fine black-and-white illustration. Thanks also to Michael Grayum (MO) for helpful discussions concerning this manuscript and especially for help in zeroing in on an appropriate epithet; I take full

blame, however, for its final form. Special thanks to Dan Austin (ASDM) for his, as always, prompt and helpful comments on the manuscript.

LITERATURE CITED

Austin, D.F. and Z. Huáman. 1996. A synopsis of *Ipomoea* (Convolvulaceae) in the Americas. Taxon 45: 3–38.

Hammel, B. E. 2010. Convolvulaceae. Pp. 72–126 *in*, B.E.Hammel, M.H. Grayum, C. Herrera, and N. Zamora (eds.). *Manual de Plantas de Costa Rica.* Vol. V. Dicotiledóneas (Clusiaceae–Gunneraceae). Monogr. Syst. Bot. Missouri Bot. Gard. 119: 1–970.

Stearn, W.T. 1983. Botanical Latin (ed. 3). David & Charles, Newton Abbot, Devon, Great Britain.